US009028059B2

(12) **United States Patent**
Kawamata et al.

(10) **Patent No.: US 9,028,059 B2**
(45) **Date of Patent: *May 12, 2015**

(54) **INK-JET RECORDING APPARATUS**

(71) Applicant: **Brother Kogyo Kabushiki Kaisha**, Aichi-ken (JP)

(72) Inventors: **Noriyuki Kawamata**, Nagoya (JP); **Yasuhira Ota**, Yatomi (JP); **Masao Mimoto**, Nagoya (JP); **Iwane Sano**, Obu (JP); **Jie Xiu**, Nagoya (JP); **Keisuke Wakakusa**, Nagoya (JP); **Shingo Ito**, Kasugai (JP)

(73) Assignee: **Brother Kogyo Kabushiki Kaisha**, Nagoya-shi, Aichi-ken (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/179,769**

(22) Filed: **Feb. 13, 2014**

(65) **Prior Publication Data**

US 2014/0232801 A1 Aug. 21, 2014

(30) **Foreign Application Priority Data**

Feb. 18, 2013 (JP) 2013-029104

(51) **Int. Cl.**
B41J 29/13 (2006.01)
B41J 29/02 (2006.01)

(52) **U.S. Cl.**
CPC . ***B41J 29/02*** (2013.01); ***B41J 29/13*** (2013.01)

(58) **Field of Classification Search**
USPC 347/108, 109, 8
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,837,308 B2 * 11/2010 Yano 347/84

FOREIGN PATENT DOCUMENTS

JP H05-000556 1/1993
JP 2003-326804 11/2003

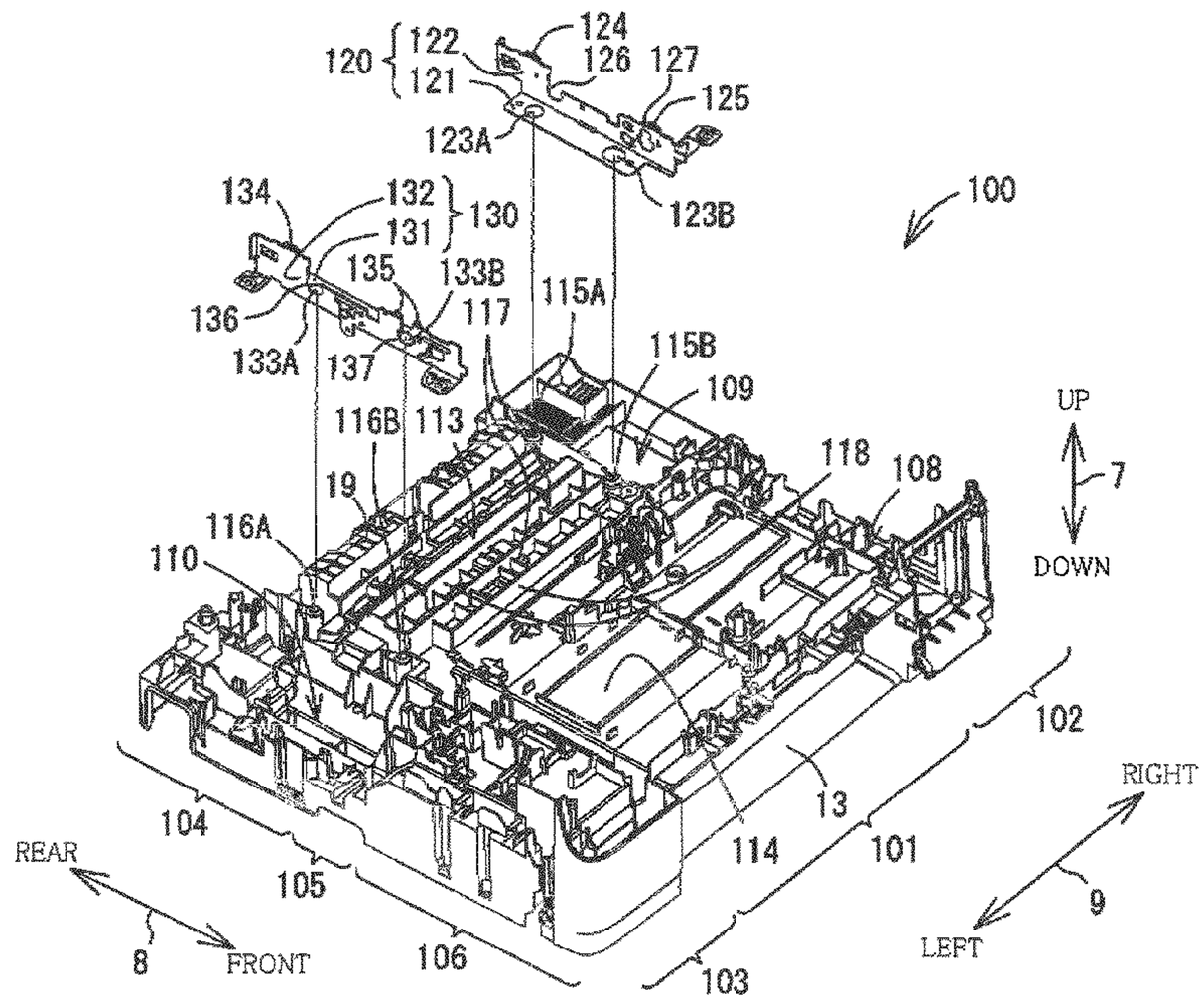
* cited by examiner

Primary Examiner — Henok Legesse
(74) *Attorney, Agent, or Firm* — Frommer Lawrence & Haug LLP

(57) **ABSTRACT**

An ink-jet recording apparatus includes: a base member; a conveyor unit for conveying a sheet in a first direction; and a recording unit for ejecting ink when opposed to a sheet in a second direction. The base member includes: a first side base portion; a second side base portion; a center base portion located between the first side base portion and the second side base portion in a third direction; first and second side walls extending in the first direction and projecting in the second direction from opposite edge portions of the center base portion in the third direction; and a main board connecting the first side wall and the second side wall and configured to support the conveyor unit and the recording unit. The main board is greater in stiffness than the first side wall and the second side wall.

9 Claims, 10 Drawing Sheets



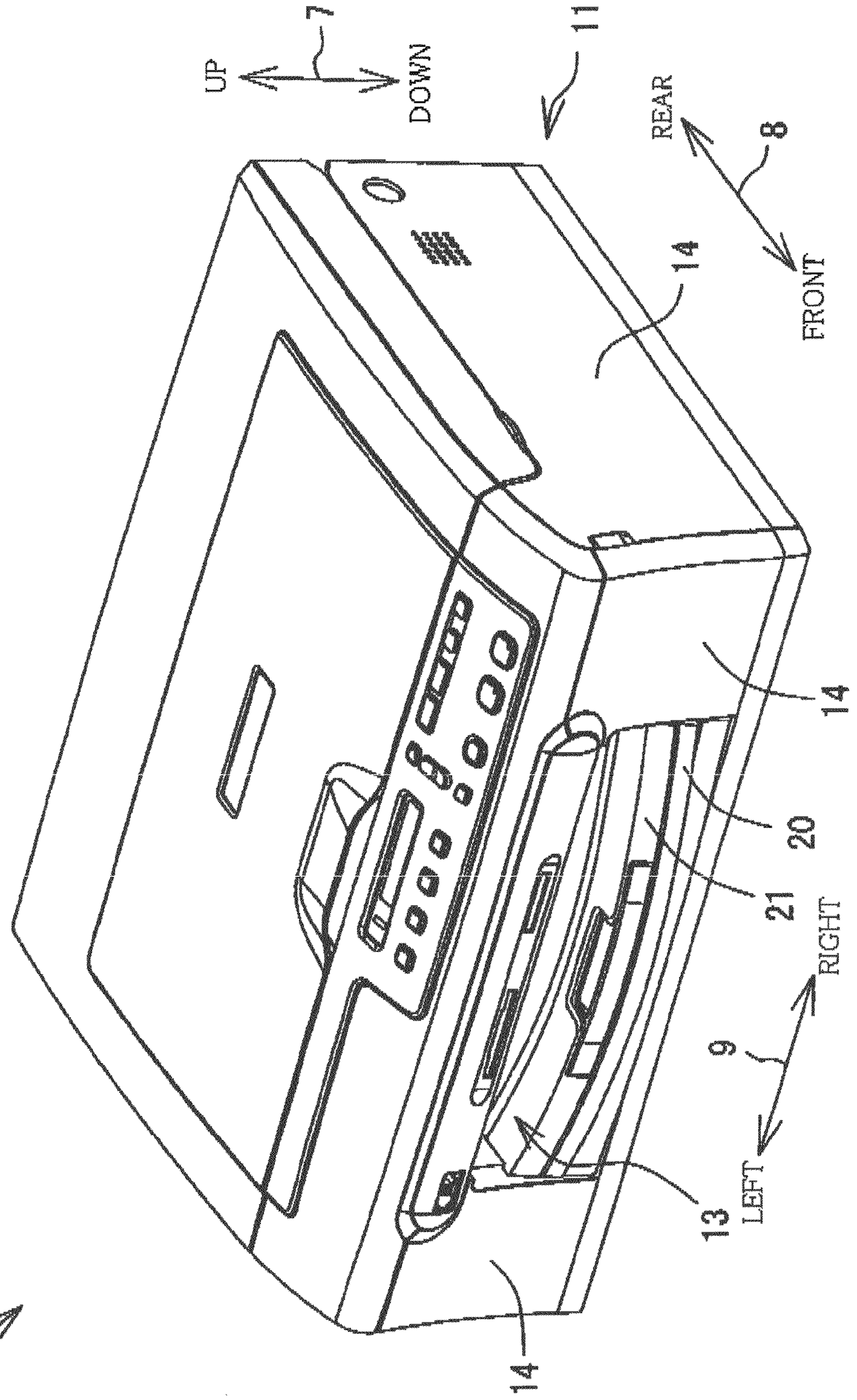


FIG. 1

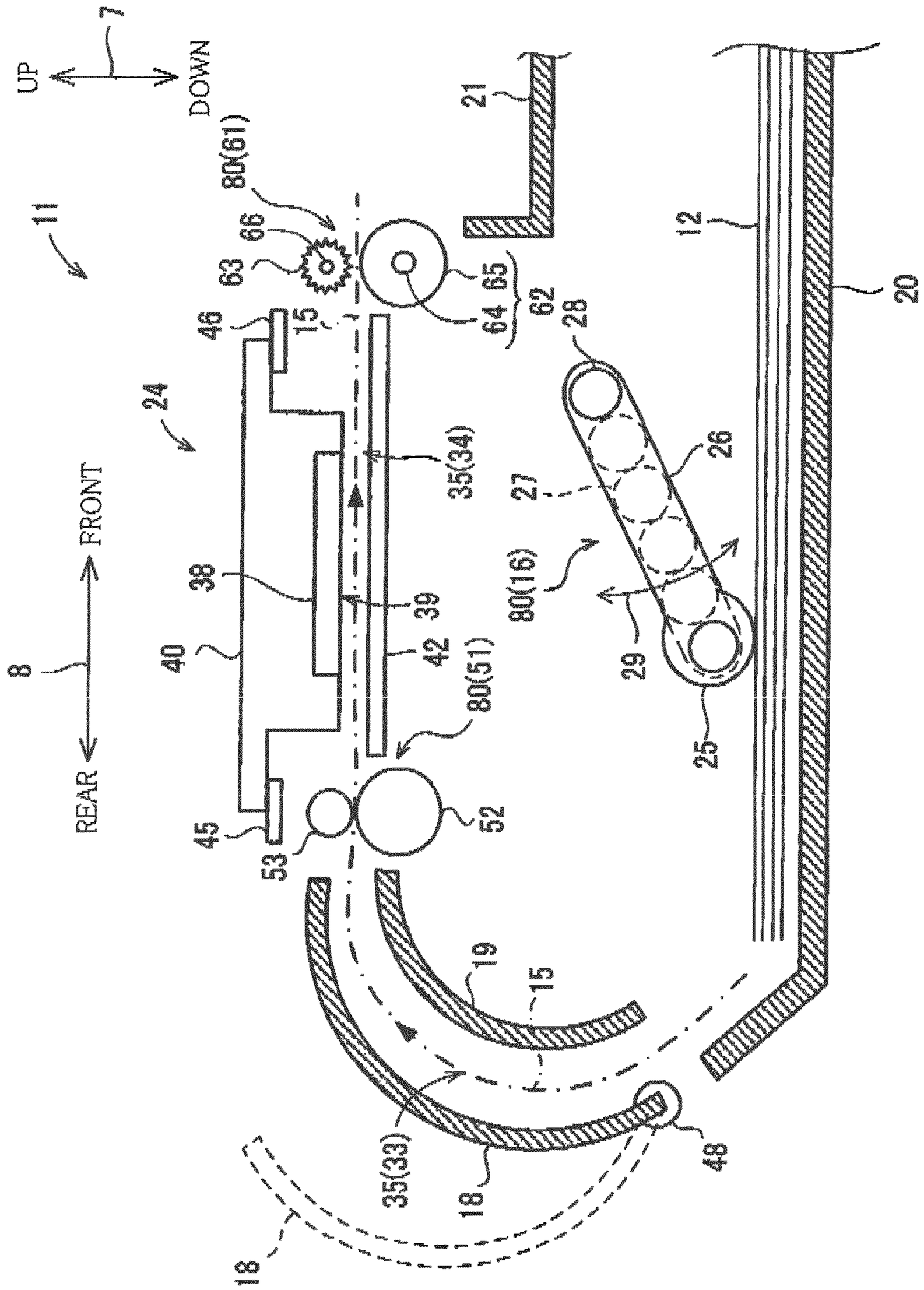

UP
DOWN
7
11
8
FRONT
REAR
80(61)
66
63
64
65
62
46
15
24
35(34)
38
39
40
42
80(51)
45
53
52
21
28
26
27
80(16)
29
25
12
20
19
35(33)
18
48

FIG.2

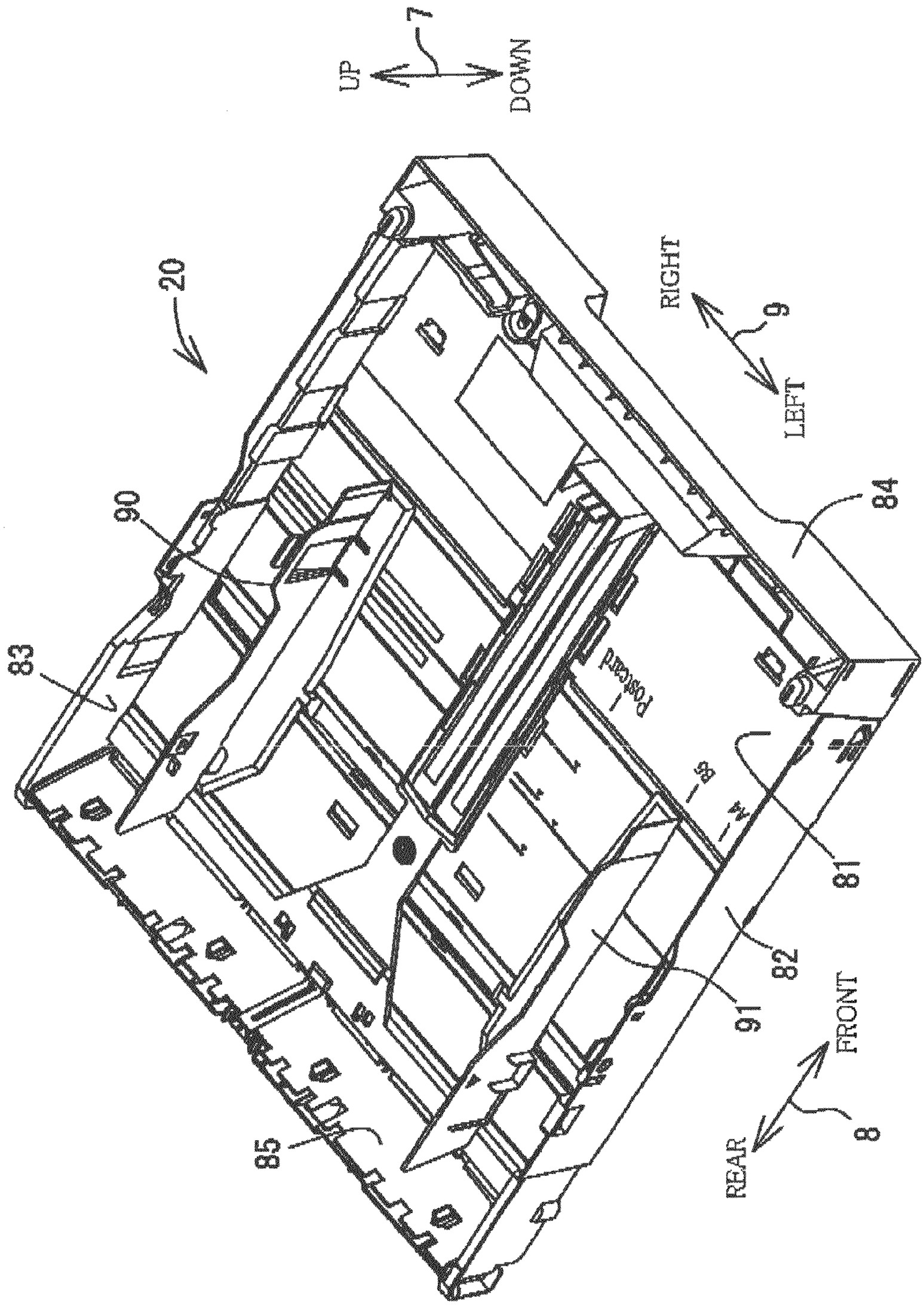

UP
DOWN
7
20
RIGHT
9
LEFT
90
84
83
Postcard
88
86
81
91
82
FRONT
8
REAR
85

FIG.3

FIG.4A

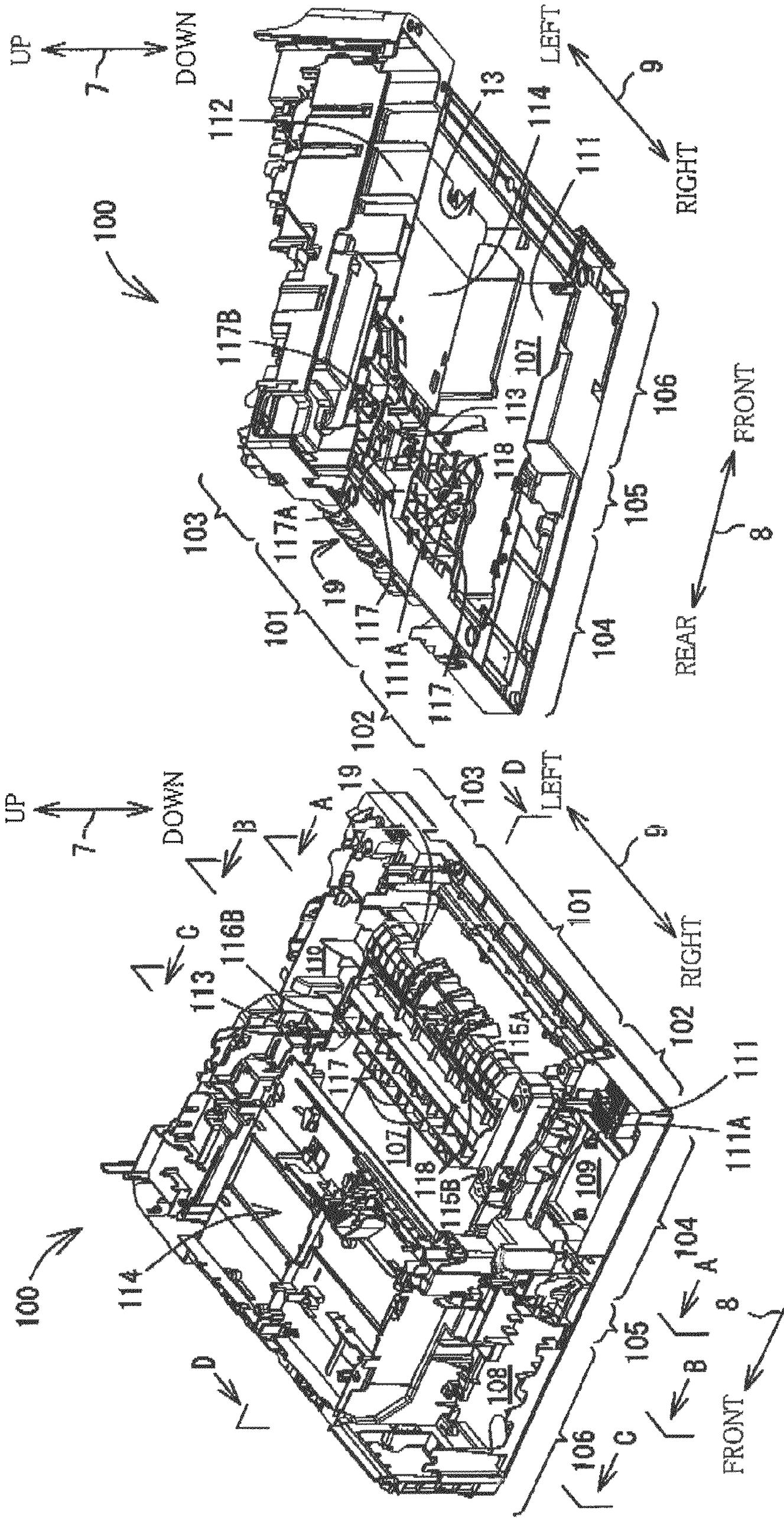

100
UP
DOWN
7
LEFT
RIGHT
9
FRONT
REAR
8
A
B
C
D
101
102
103
104
105
106
107
108
109
111
111A
112
113
114
115A
115B
116B
117
117A
117B
118
119

FIG.4B

100
UP
DOWN
7
LEFT
RIGHT
9
FRONT
REAR
8
A
B
C
D
101
102
103
104
105
106
107
111
111A
112
113
114
116B
117
117A
117B
118
119

FIG.5A

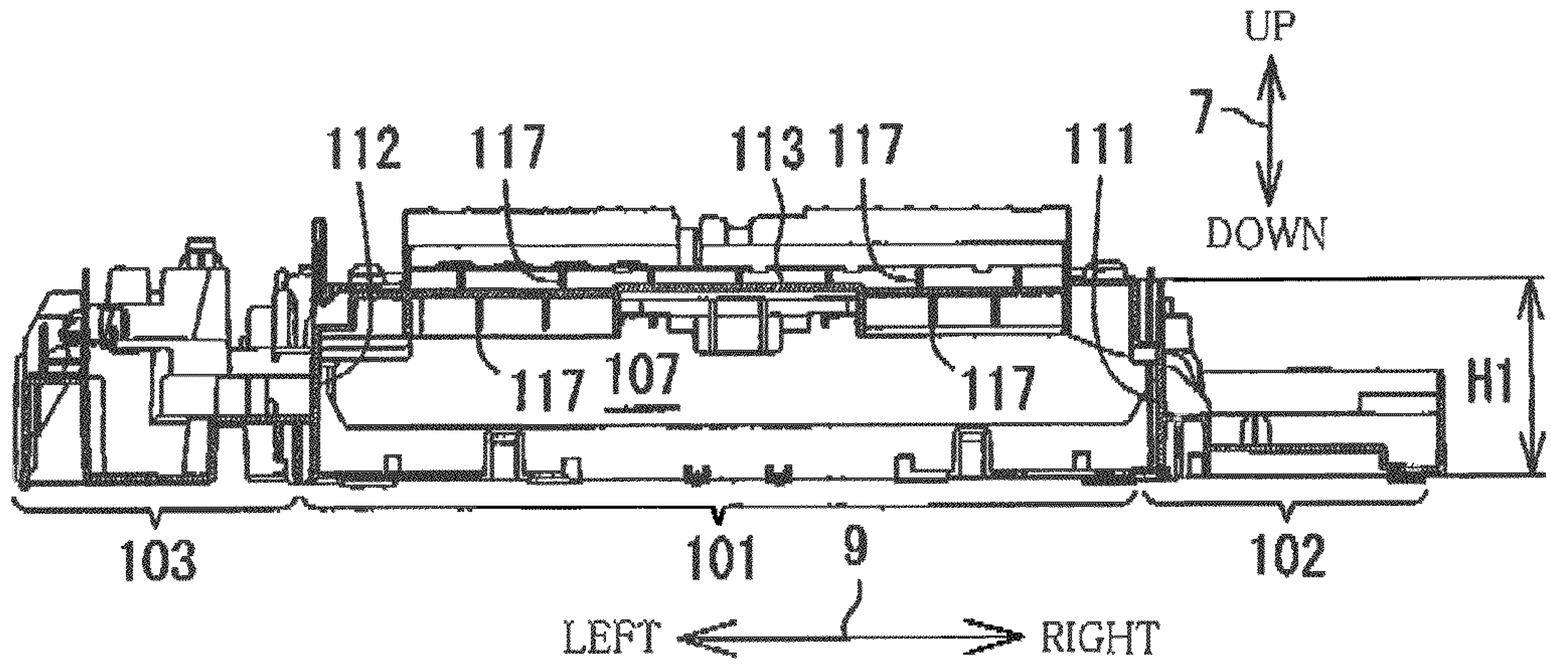


FIG.5B

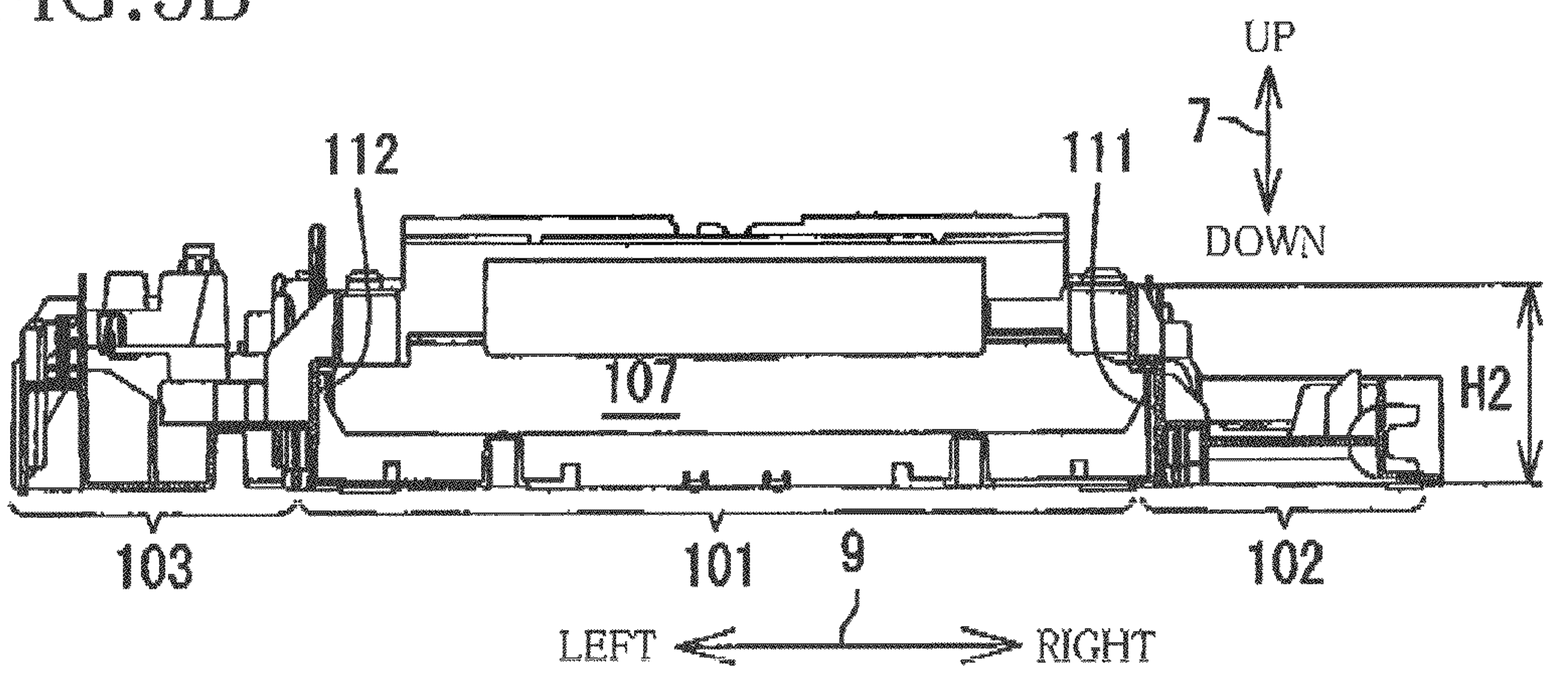
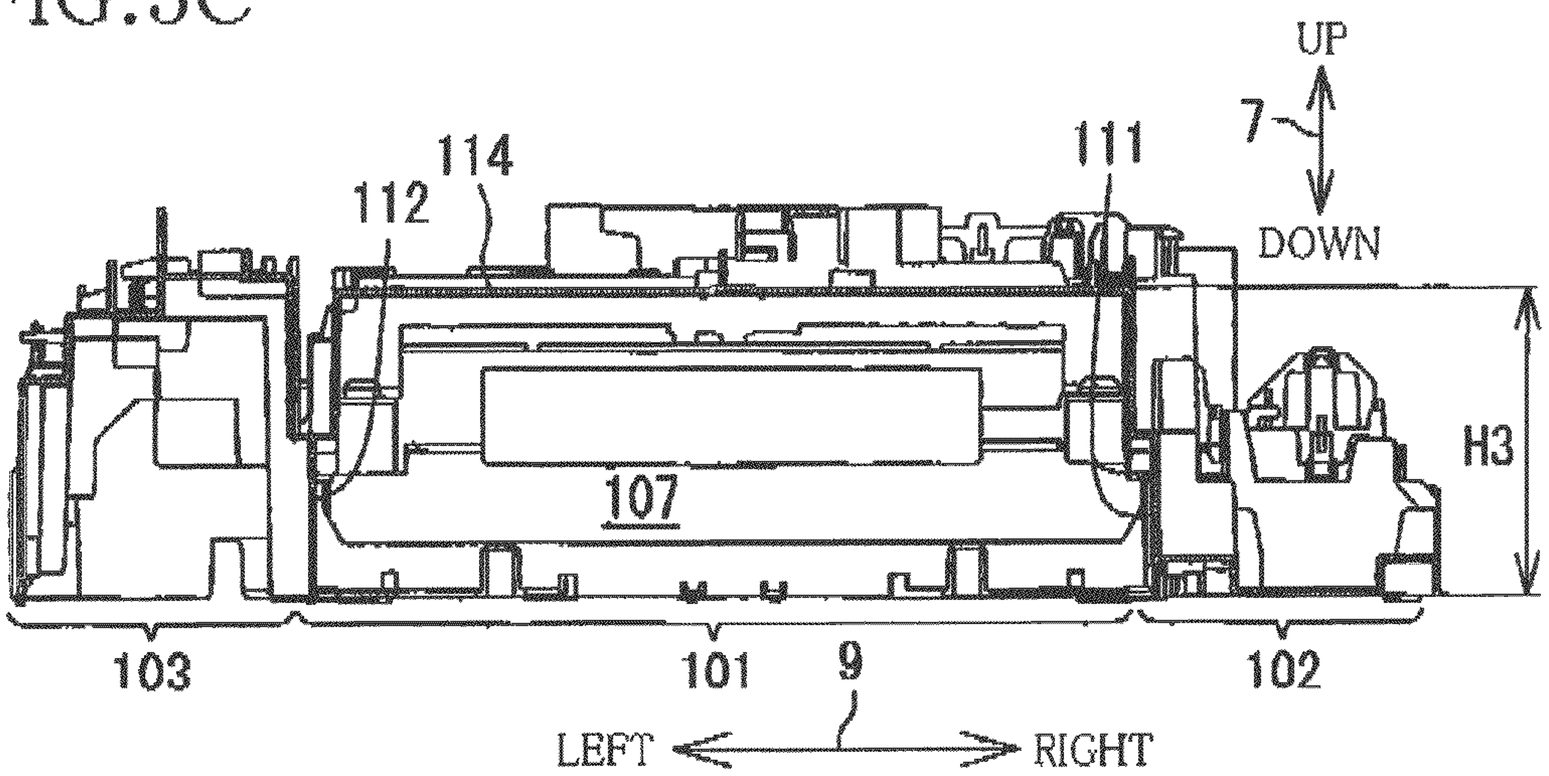


FIG.5C



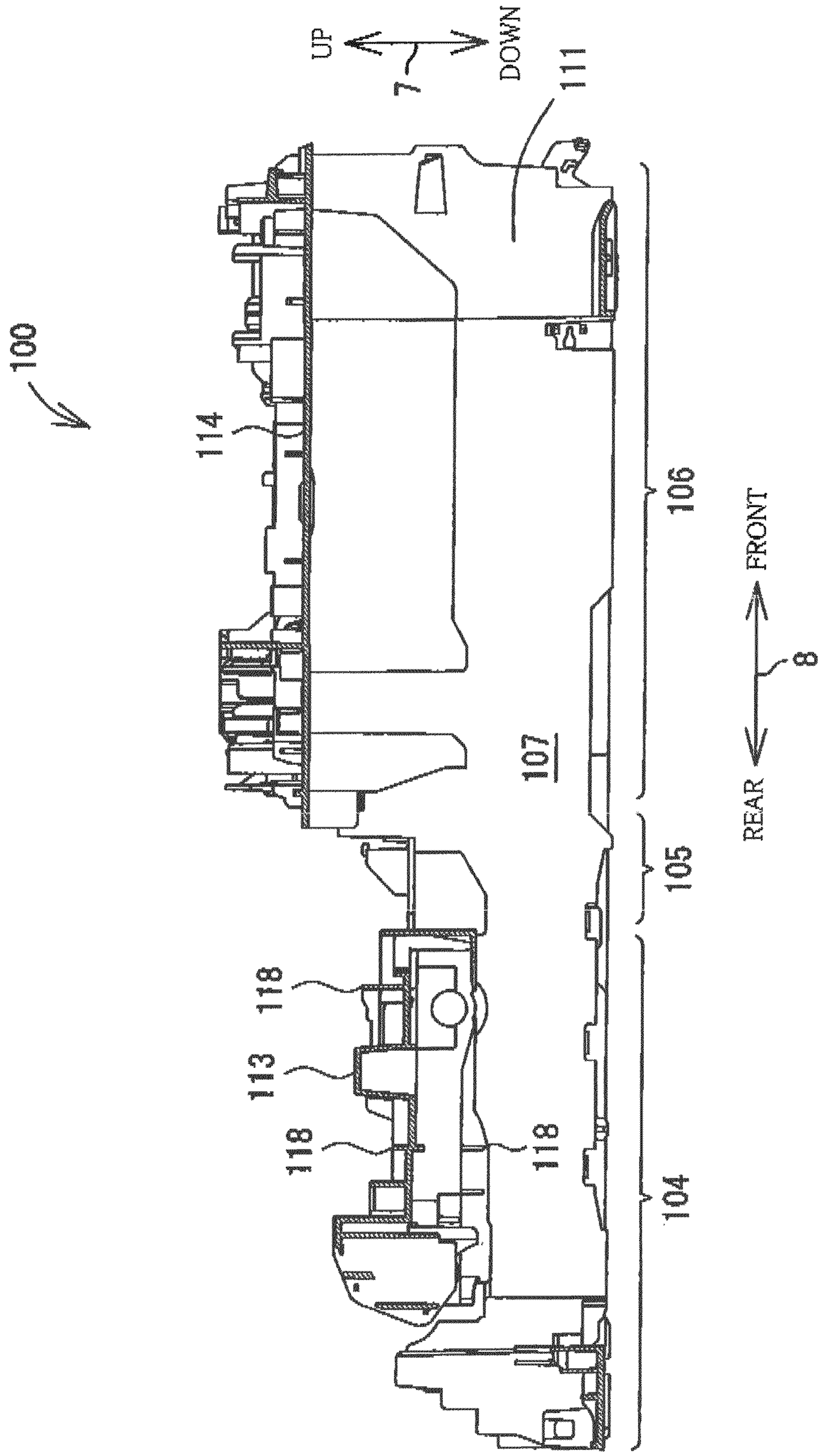

UP
DOWN
7
111
100
114
107
106
105
104
FRONT
REAR
8
118
113
118
118

FIG.6

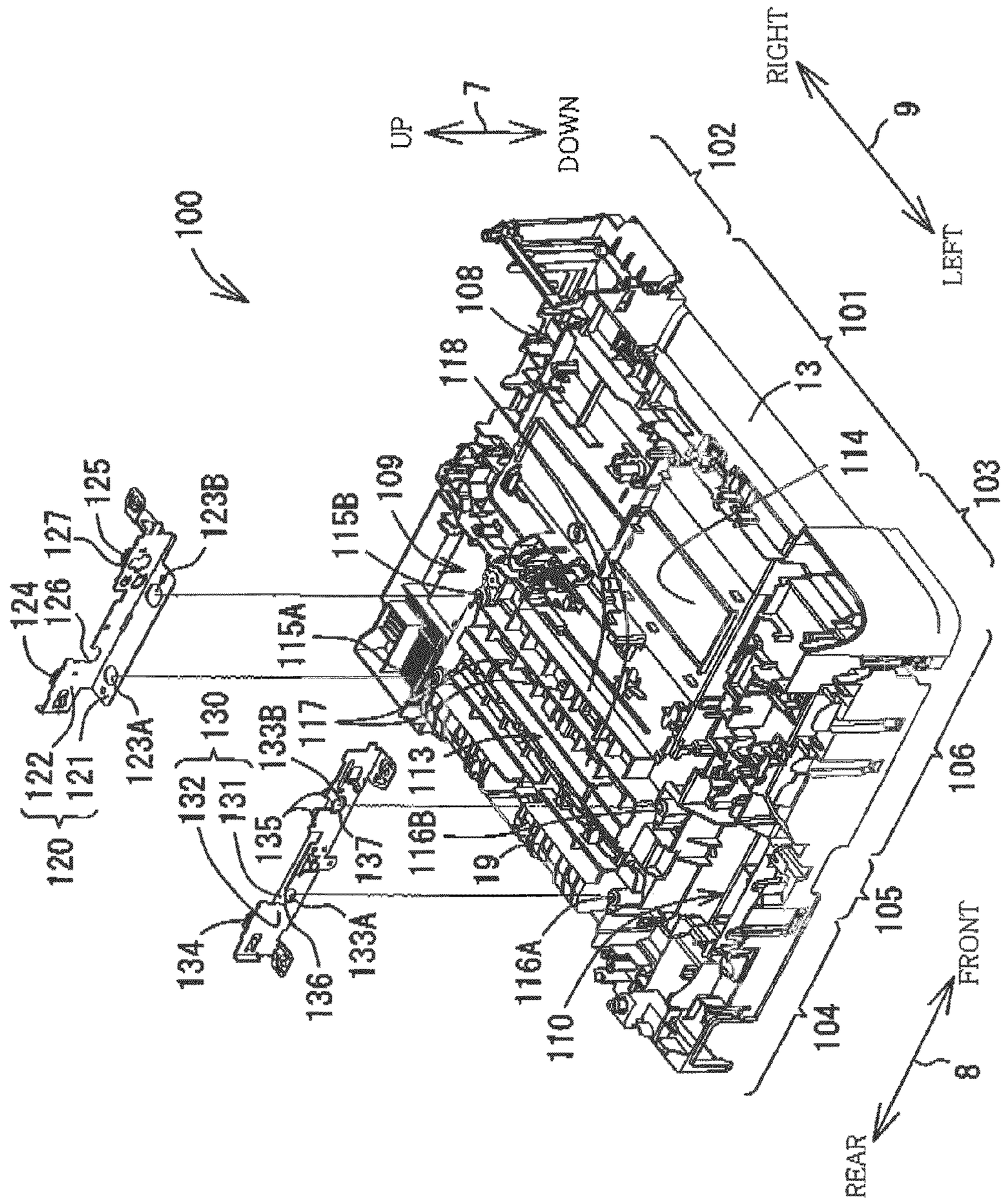

UP
DOWN
7
RIGHT
9
102
LEFT
100
108
118
101
13
114
103
109
115B
123B
125
127
124
126
115A
123A
130
122
121
120
132
131
133B
117
113
135
137
116B
19
134
133A
36
136
116A
110
105
106
104
FRONT
REAR
8

FIG.7

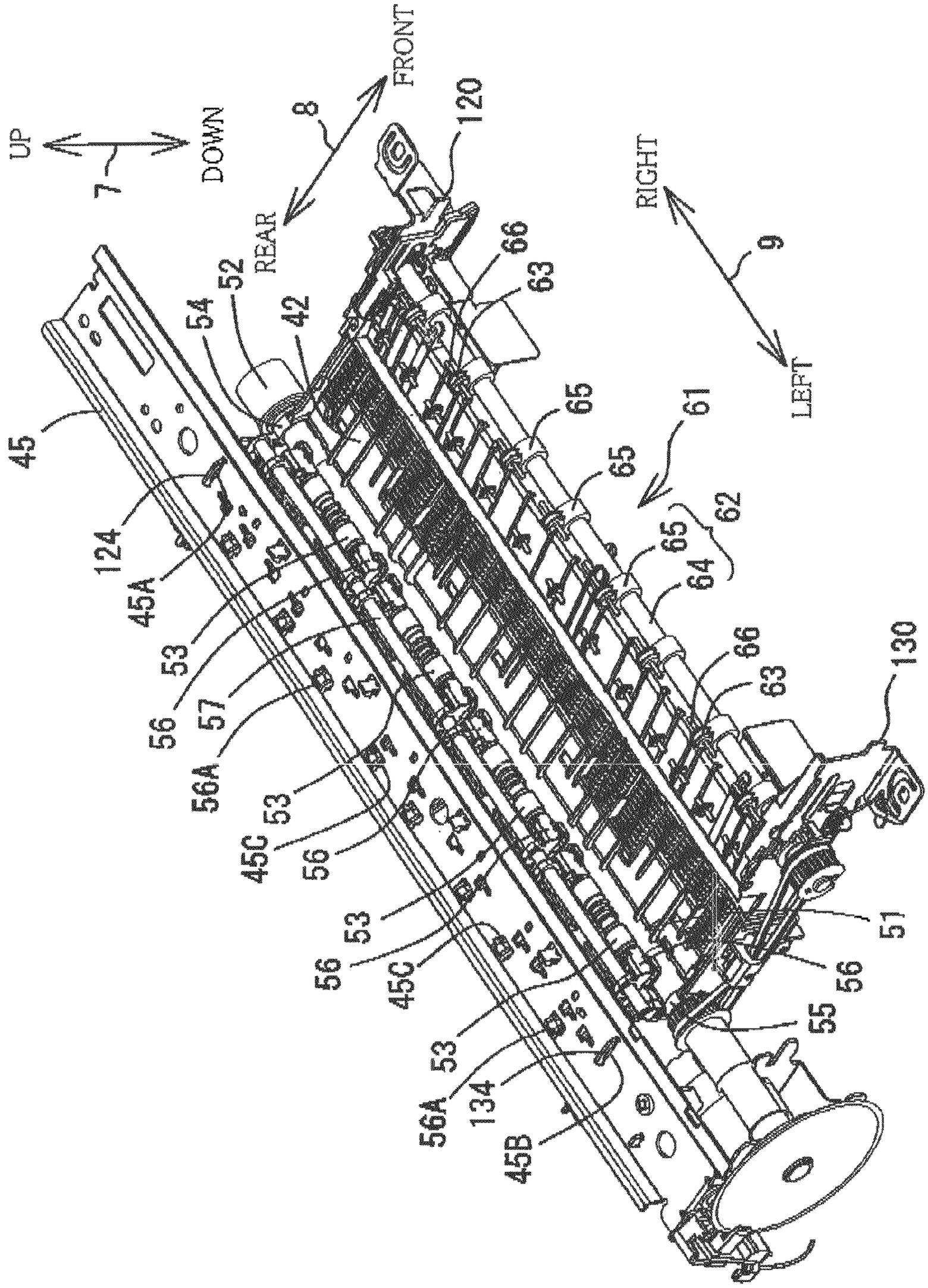

UP
DOWN
7
FRONT
REAR
8
120
LEFT
RIGHT
9
45
124
45A
54
52
42
66
63
65
61
62
64
53
56
57
56A
45C
130
51
55
134
45B

FIG.8

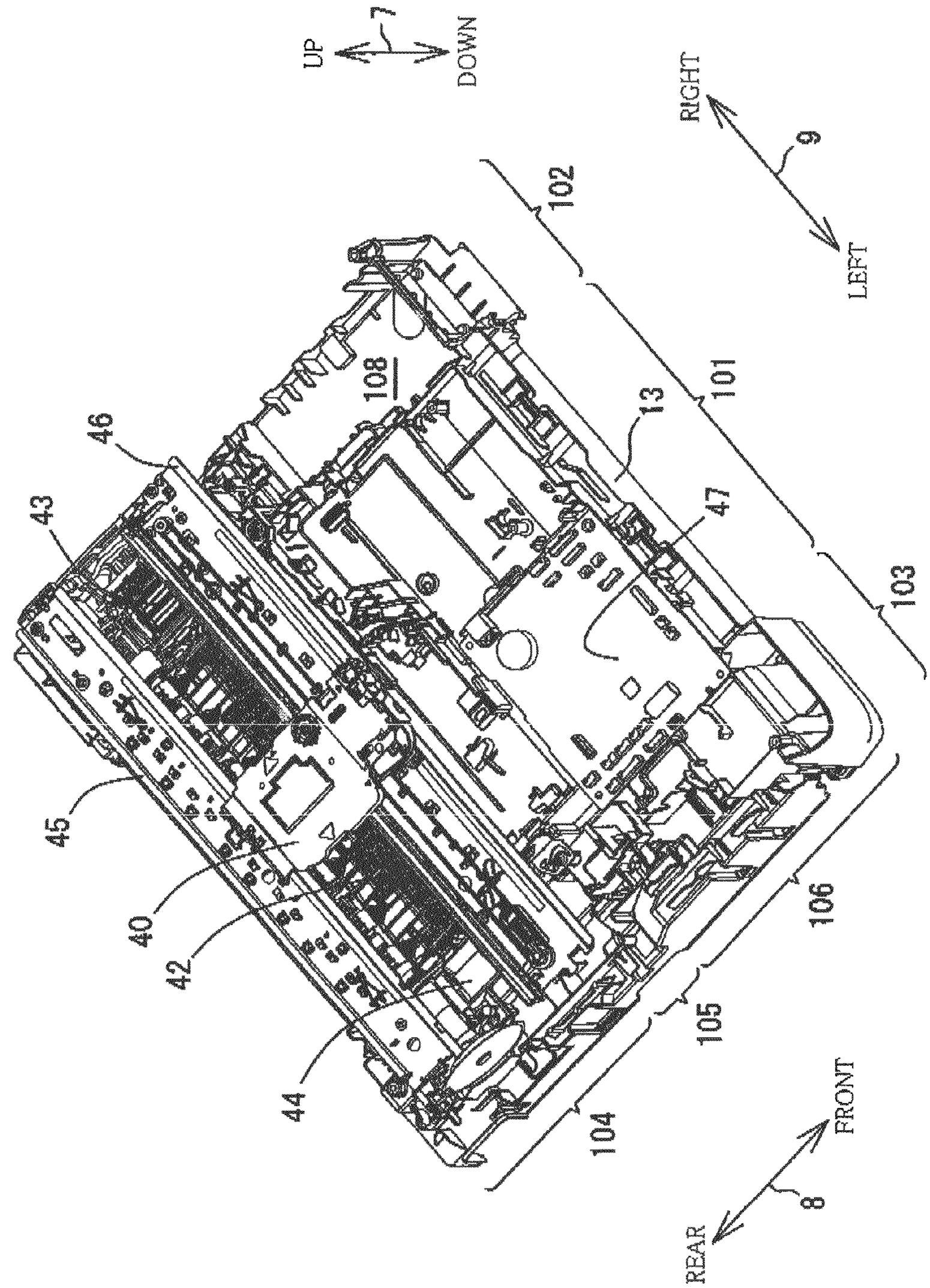

UP
7
DOWN
RIGHT
9
LEFT
102
101
108
13
46
47
43
103
45
40
42
106
105
44
104
8
REAR
FRONT

FIG.9

FIG.10A

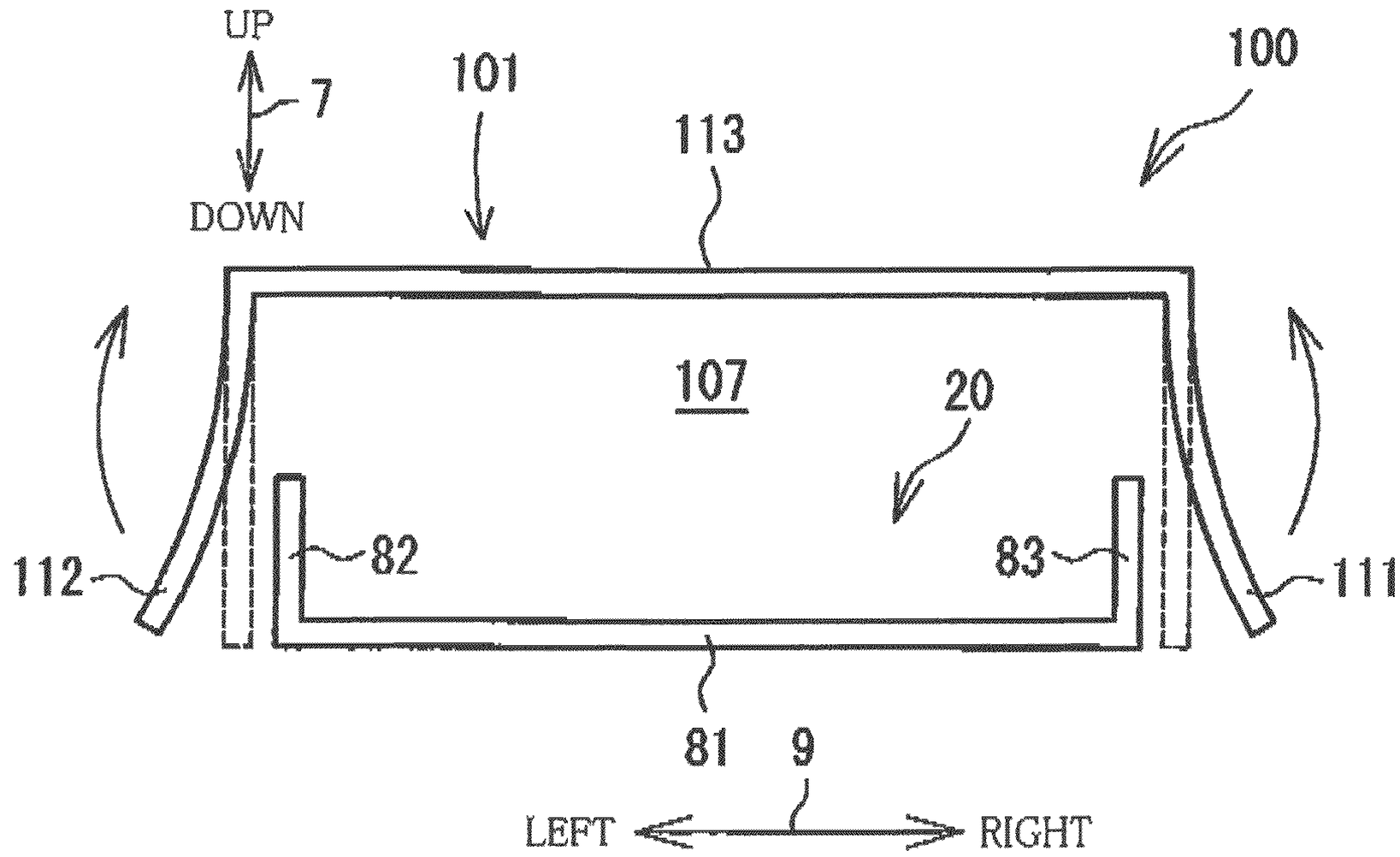
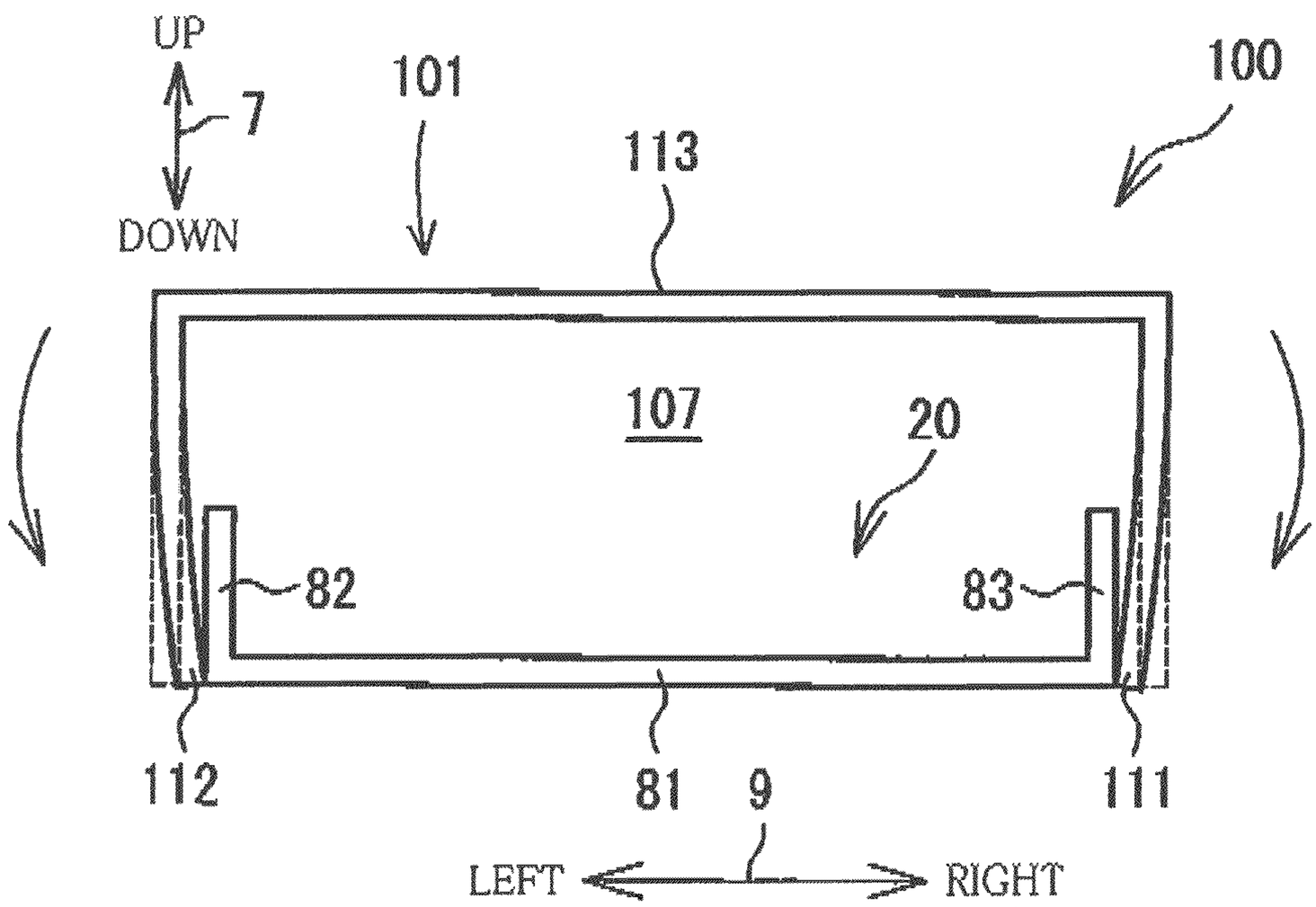


FIG.10B



INK-JET RECORDING APPARATUS

CROSS REFERENCE TO RELATED APPLICATION

The present application claims priority from. Japanese Patent Application No. 2013-029104, which was filed on Feb. 18, 2013, the disclosure of which is herein incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an ink-jet recording apparatus including a resin base member formed as one member.

2. Description of the Related Art

An ink-jet recording apparatus has been known. This ink-jet recording apparatus controls a conveyor unit to convey a recording sheet through a conveyance path in a conveying direction and controls a recording unit to eject it droplets to record an image on the recording sheet in a state in which the recording unit is opposed to the recording sheet in a direction perpendicular to the conveying direction.

In order to reduce a size, cost, the number of components, and the like, there has been known a structure of such an ink-jet recording apparatus which does not include a sheet metal component for positioning the conveyor unit and the recording unit but include a resin base member formed as one member to support the conveyor unit and the recording unit.

SUMMARY OF THE INVENTION

Upon application of an external force, however, the resin base member is deformed more greatly than the sheet metal component. For example, if the ink-jet recording apparatus constructed as described above is placed over a step or raised, slid thereby a bending moment is applied to the base member, a shaft of the conveyor unit may be bent or inclined, or a gap (i.e., a distance) between the recording unit and the recording sheet may be changed to an undesired one.

This invention has been developed to provide an ink-jet recording apparatus including a base member whose portion supporting a conveyor unit and a recording unit is less deformed by an external force acting on the apparatus.

The present invention provides an ink-jet recording apparatus comprising: a base member formed of one resin member; a conveyor unit supported by the base member and configured to convey a sheet in a conveying direction that is parallel to a first direction; and a recording unit supported by the base member and configured to eject ink to record an image on the sheet in a state in which the recording unit is opposed to the sheet in a second direction perpendicular to the first direction, wherein the base member comprises: a first side base portion and a second side base portion each extending in the first direction and spaced apart from each other in a third direction that is perpendicular to each of the first direction and the second direction; a center base portion located between the first side base portion and the second side base portion in the third direction; a pair of side walls opposed to each other in the third direction and comprising (i) a first side wall extending in the first direction and projecting in the second direction from an edge portion of the center base portion near the first, side base portion in the third direction and (ii) a second side wall extending in the first direction and projecting hi the second direction from an edge portion of the center base portion near the second side base portion in the third direction; and a main board connecting the that side wall and the second side wall to each other and configured to support the conveyor unit and the recording unit, wherein a shiftless of the main board is greater than that of each of the first side wall and the second side wall.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects, features, advantages, and technical and industrial significance of the present invention will be better understood by reading the following detailed description of the embodiment of the invention, when considered in connection with the accompanying drawings, in which:

FIG. **1** is a perspective view illustrating a multi-function peripheral (MTP) **10** as one example of an embodiment of the present invention;

FIG. **2** is an elevational view in vertical cross section schematically illustrating an internal structure of a printing section **11**;

FIG. **3** is a perspective view illustrating a supply tray **20**;

FIGS. **4**A and **4**B are perspective views illustrating of a base member **100**, wherein FIG. **4**A is a perspective view illustrating the base member **100** when viewed from diagonally above, and FIG. **4**B is a perspective view illustrating the base member **100** when viewed from diagonally below;

FIGS. **5**A-**5**C are cross-sectional views of FIG. **4**A, wherein FIG. **5**A is a cross-sectional view taken along line A-A in FIG. **4**A, FIG. **5**B is a cross-sectional view taken along line B-B in FIG. **4**A, and FIG. **5**C is a cross-sectional view taken along line C-C in FIG. **4**A;

FIG. **6** is a cross-sectional view taken along line D-D in FIG. **4**A;

FIG. **7** is au exploded perspective view illustrating the base member **100** and side frames **120**, **130**;

FIG. **8** is a perspective view illustrating a guide rail **45**, a conveyor reflex pair **51**, a platen **42**, and an output roller pair **61** supported by the side frames **120**, **130**;

FIG. **9** is a perspective view illustrating the base member **100** on which a carriage **40** is mounted; and

FIGS. **10**A and **10**B are schematic views each illustrating a shape of a center base **101** in a first region **104** which is deformed by a bending moment.

DETAILED DESCRIPTION OF THE EMBODIMENT

Hereinafter, there will be described one embodiment of the present invention by reference to the drawings. It is to be understood that the following embodiment is described only by way of example, and the invention may be otherwise embodied with various modifications without departing from the scope and spirit of the invention. A multi-function peripheral (MFP) **10** is used in a state illustrated in FIG. **1**. In the present embodiment, three arrows illustrated in FIG. **1** indicate an up and down direction **7**, a front and rear direction **8**, and a right and left direction **9**. In the following explanation, the up and down direction **7** is defined as an up and down direction of the MFP **10** illustrated in FIG. **1**, i.e., the MFP **10** being in a normal state. Also, the front and rear direction **8** is defined by regarding a side of the MFP **10** on which an opening **13** is formed as a front side, and the right and left direction **9** is defined in a state in which the MFP **10** is seen from the front side. In the present embodiment, the front and rear direction **8** is one example of a first direction, the up and down direction **7** is one example of a second direction, and the right and left direction **9** is one example of a third direction.

<Overall Structure of MFP **10**>

As illustrated in FIG. **1**, the MFP **10** as one example of an ink-jet recording apparatus according to the present invention is of a slim type having a generally rectangular parallelepiped shape. A printing section **11** is provided in a lower portion of the MFP **10**. The MFP **10** has various functions such as a facsimile function and a printing function. One example of the printing function of the MFP **10** is a function for ejecting ink to record an image on one side of a recording sheet **12** (see FIG. **2**). It is noted that the MFP **10** may be configured to record images on both sides of the recording sheet **12**.

As illustrated in FIG. **1**, the opening **13** is formed in a front face of the printing section **11**. A supply tray **20** capable of accommodating recording sheets **12** of various sizes can be inserted into and removed from the printing section **11** through the opening **13** in the front and rear direction **8**. An output tray **21** is stacked on the supply tray **20**. The output tray **21** is moved together with the supply tray **20**. The output tray **21** supports a recording sheet **12** recorded by a recording unit **24** which will be described below and discharged by an output roller pair **61** which will be described below.

<Supply Tray **20**>

As illustrated in FIG. **3**, the supply tray **20** has a box shape opening upward and includes a bottom plate **81** (as one example of a support statue), a left side plate **82** and a right side plate **83** (as one example of opposite walls), a front plate **84**, and an inclined plate **85**. The let side plate **82** and the right side plate **83** project upward respectively from opposite edge portions of the bottom plate **81** in the right and left direction **9**. The front plate **84** projects upward from a front edge portion of the bottom plate **81** in the front and rear direction **8**. The output tray **21** is supported by the left side plate **82**, the right side plate **83**, and the front plate **84** (see FIG. **1**). The inclined plate **85** extends in a rear upward direction from a rear end of the bottom plate **81** in the front and rear direction **8** to guide a recording sheet **12** to a conveyance path **35** after the recording sheet **12** is supplied from a supply unit **16**.

The bottom plate **81** can support recording sheets **12** of a plurality of Aoudad sizes such as the A**4** size, the B**5** size, the legal size, and the postcard size. The bottom plate **81** has marks each indicating a position of one of edge portions (a left edge portion in the example in FIG. **3**) of the recording sheet **12** of a corresponding one of the various standard sizes in the right and left direction **9** FIG. **3** illustrates "A**4**", "B**5**", and "Postcard" as examples of the mark, but other marks may be used of course. As illustrated in FIG. **3**, provided on the bottom plate **81** are guide members **90**, **91** for positioning a recording sheet or sheets **12** placed on the bottom plate **81** by contacting opposite edges of the recording sheet(s) **12** in the right and left direction. The guide members **90**, **91** use center alignment to prevent skew of the recording sheet **12** and to position the various standard sizes of the recording sheets **12** placed on the bottom plate **81**. The center alignment is an operation for aligning a center of each recording sheet **12** in the right and left direction **9** to a center of the bottom plate **81** in the right and left direction **9**.

A user places the recording sheet(s) **12** on the bottom plate **81** such that the center of each recording sheet **12** is aligned to a center line of the bottom plate **81** in the right and left direction **9**. The user then slides the guide member **90** in the left direction of the right and left direction **9** to a position indicated by the mark that corresponds to the size of the recording sheet(s) **12**, so that the guide member **90** is brought into contact with a right edge of the recording sheet(s) **12**. The guide member **91** is slid in the tight direction by a pinion gear, not shown, in conjunction with the guide member **90** and brought into contact with a left edge of the recording sheet(s) **12**. The recording sheet or sheets **12** of the various standard sizes placed on the bottom plate **81** are thus positioned by the guide members **90**, **91** using the center alignment.

The printing section **11** includes a base member **100** (see FIG. **4**) and an exterior cover **14** for covering the base member **100** from above. As illustrated in FIG. **2**, components provided in the printing section **11** include the supply unit **16**, a conveyor roller pair **51**, the recording unit **24**, the output roller pair **61**, and a platen **42**. In the printing section **11**, the base member **100** supports the supply unit **16**, the conveyor roller pair **51**, the recording unit **24**, the output roller pair **61**, the platen **42**, and other components, which are covered with the exterior cover **14**.

The supply unit **16** picks up one of the recording sheets **12** from the supply tray **20** to supply the recording sheet **12** to the conveyance path **35**. The conveyor roller pair **51** conveys the recording sheet **12** supplied by the supply unit **16** into the conveyance path **35**, to a downstream side in a conveying direction **15**. The recording unit **24** ejects ink droplets onto the recording sheet **12** conveyed by the conveyor roller pair **51**, to record an image on the recording sheet **12**. The output roller pair **61** discharges onto the output tray **21** the recording sheet **12** recorded by the recording unit **24**. The platen **42** supports a lower side of the recording sheet **12** conveyed by the conveyor roller pair **51**.

<Conveyance Path **35**>

As illustrated in FIG. **2**, the conveyance path **35** extends from a rear edge portion of the supply tray **20**. The conveyance path **35** includes a curved conveyance path **33** and a straight conveyance path **34**. The curved conveyance path **33** curves, with a rear side of the printing section **11** being as an outside of the path **33**. The straight conveyance path **34** extends in the front and rear direction **8**. The recording sheet **12** supported on the supply tray **20** is conveyed so as to make an upward U-turn through the curved conveyance path **33** from a lower portion thereof and then conveyed frontward in the front and rear direction **8** through the straight conveyance path **34** to the recording unit **24**. After the image recording for the recording unit **24**, the recording sheet **12** is conveyed frontward in the front and rear direction **8** through the straight conveyance path **34** and discharged onto the output tray **21**. That is, the recording sheet **12** is conveyed in the conveying direction **15** indicated by one-dot chain line arrow in FIG. **2**.

The curved conveyance path **33** is defined by an outer guide member **18** and an inner guide member **19** which are opposed to each other with a predetermined distance therebetween. The outer guide member **18** serves as an outer wall of the curved conveyance path **33**, and the inner guide member **19** serves as an inner wall of the curved conveyance path **33**. The straight conveyance path **34** is defined by the recording unit **24** and the platen **42** which are opposed to each other with a predetermined distance therebetween at a position where the recording unit **24** is disposed. That is, each of the guide members **18**, **19** forms at least a portion of the conveyance path **35**.

The outer guide member **18** is pivotably supported by the base member **100** which will be described below. Shafts **48** each extending in the right and left direction **9** are formed respectively on opposite ends of a lower end portion of the outer guide member **18** in the right and left direction **9**. In the present embodiment, each of the shafts **48** is a projection extending outward from a corresponding one of the opposite ends of the outer guide member **18** in the right and left direction **9**. The shafts **48** are fitted in holes, not shown, formed in the base member **100**. As a result, the outer guide member **18** is pivotable between a covering position (indicated by solid lines in FIG. **2**) where the outer guide member **18** covers the curved conveyance path **33** and an exposing

position (indicated by broken lines in FIG. **2**) where the outer guide member **18** exposes the curved conveyance path **33**.

At the covering position, the outer guide member **18** defines the curved conveyance path **33** of the conveyance path **35** with the inner guide member **19**. At the exposing position of the outer guide member **18**, on the other hand, an outside face of the inner guide member **19** is exposed to en outside of the printing section **11**. That is, the outer guide member **18** at the exposing position exposes the curved conveyance path **33** of the conveyance path **35** to the outside. As a result, the user of the MFP **10** can clear a recording sheet **12** stuck in the curved conveyance path **33**, in other words, the user can perform a jam clearing operation.

<Conveyor Unit **80**>

A conveyor milt **80** includes: the supply writ **16** disposed upstream of the curved conveyance path **33** in the conveying direction **15**; the conveyor roller pair **51** disposed in the straight conveyance path **34** at a position located upstream of the recording unit **24** in the conveying direction **15**; and the output roller pair **61** disposed in the straight conveyance path **34** at a position located downstream of the recording unit **24** in the conveying direction **15**.

<Supply Unit **16**>

As illustrated in FIG. **2**, the supply unit **16** is provided above the supply tray **20** and under the recording unit **24** in the printing section **11**. The supply unit **16** includes a supply roller **25**, a supply arm **26**, and a drive-power transmitting mechanism **27**. The supply roller **25** is supported by a shaft at a distal end portion of the supply arm **26**. The supply arm **26** pivots in a direction indicated by arrow **29** about a support shaft **28** provided on a basal end portion of the supply arm **26**. As a result, the supply roller **25** can be moved toward and away from the supply tray **20** or the recording sheet **12** supported on the supply tray **20**. The supply roller **25** is rotated by a driving force produced by a conveyor motor, not shown, which is transmitted by the drive-power transmitting mechanism **27** constituted by a plurality of gears. It is noted that the supply roller **25** may be rotated by a driving force applied from a motor provided independently of the conveyor motor.

<Conveyor Roller Pair **51**>

As illustrated in FIG. **2**, the conveyor roller pair **51** is constituted by a conveyor roller **52** and pinch rollers **53**. In the present embodiment, the conveyor roller **52** is formed by coating an outer circumferential surface of a roller shaft with ceramic, for example. Also, a metal cylindrical shaft (e.g., a hollow shaft) is employed as the roller shaft in the present embodiment. However, a concrete structure of the conveyor roller **52** is not limited to this structure. For example, the conveyor roller **52** may be formed by fitting a roller on the roller shaft, and a solid shaft may be employed as the roller shaft.

In the present embodiment, the conveyor roller **52** is disposed in a lower portion of the straight conveyance path **14** and contacts a lower side of the recording sheet **12** conveyed from the curved conveyance path **33** to the straight conveyance path **34**. The conveyor roller **52** is rotated by a driving force applied from a conveyor motor that is capable of rotating forwardly and reversely. On the other hand, the pinch rollers **53** are disposed in an upper portion of the straight conveyance path **34** so as to be opposed to the conveyor roller **52** and contact an upper side of the recording sheet **12**. The pinch rollers **53** are rotated by the rotation of the conveyor roller **52**. The conveyor roller **52** and the pinch rollers **53** cooperate to nip the recording sheet **12** in the up and down direction **7** to convey the recording sheet **12** in the conveying direction **15**.

The conveyor roller **52** is rotated forwardly by a driving force applied from the conveyor motor rotating forwardly. Here, the forward rotation of the conveyor roller **52** is rotation in a direction in which the recording sheet **12** is conveyed in the conveying direction **15**. That is the forward rotation of the conveyor roller **52** when the printing section **11** is viewed in a direction in FIG. **2** is rotation in the clockwise direction, and the forward rotation of the pinch rollers **53** is rotation in the counterclockwise direction. On the other hand, the conveyor roller **52** is rotated reversely by a driving force applied from the conveyor motor rotating reversely. The reverse rotation of the conveyor roller **52** is rotation in a direction in which the recording sheet **12** is conveyed in a direction that is reverse to the conveying direction **15**. That is, the reverse rotation of the conveyor roller **52** when the printing section **11** is viewed in the direction in FIG. **2** is rotation in the counterclockwise direction, and the reverse rotation of the pinch rollers **53** is rotation in the clockwise direction.

<Output Roller Pair **61**>

As illustrated in FIG. **2**, the output roller pair **61** is constituted by an output roller **62** and spurs **63**. In the present embodiment, the output roller **62** is disposed in a lower portion of the straight conveyance path **34** and contacts the lower side of the recording sheet **12** conveyed through the straight conveyance path **34**. The output roller **62** is constituted by a shaft **64** rotated by a driving force applied from the conveyor motor and rollers **65** fitted on the shaft **64** so as to be rotated together with the shaft **64**. On the other band, the spurs **63** are disposed in an upper portion of the straight conveyance path **34** so as to be opposed to the output roller **62** and contact the upper side of the recording sheet **12**. The spurs **63** are respectively fitted on shafts **66** and rotated by the rotation of the output roller **62**. The output roller **62** and the spurs **63** cooperate to nip the recording sheet **12** in the up and down direction **7** to convey the recording sheet **12** in the conveying direction **15**.

The output roller **62** is rotated forwardly by a driving force applied from the conveyor motor rotating forwardly. Here, the forward rotation of the output roller **62** is rotation in the direction in which the recording sheet **12** is conveyed, in the conveying direction **15**. That is, the forward rotation of the output miler **62** when the printing section **11** is viewed in the direction in FIG. **2** is rotation in the clockwise direction, and the forward rotation of the spurs **63** is rotation in the counterclockwise direction. On the other hand, the output roller **62** is rotated reversely by a driving force applied from the conveyor motor rotating reversely. The reverse rotation of the output roller **62** is rotation in the direction in which the recording sheet **12** is conveyed in the direction that is reverse to the conveying direction **15**. That is the reverse rotation of the output roller **62** when the printing section **11** is viewed in the direction in FIG. **2** is rotation in the counterclockwise direction, and the reverse rotation of the spurs **63** is rotation in the clockwise direction.

<Platen **42**>

As illustrated in FIG. **2**, the platen **42** is provided in a lower portion of the straight conveyance path **34** and between the conveyor roller pair **51** and the output roller pair **61**, that is, the platen **42** is provided downstream of the conveyor roller pair **51** in the conveying direction **15** and upstream of the output roller pair **61** in the conveying direction **15**. The platen **42** is disposed so as to be opposed to the recording unit **24** in the up and down direction **7** to support the lower side of the recording sheet **12** conveyed through the straight conveyance path **34**.

<Recording Unit **24**>

As illustrated in FIG. **2**, the recording unit **24** is disposed in an upper portion of the straight conveyance path **34** so as to be opposed to the platen **42** in the up and down direction **7**. The recording unit **24** includes a carriage **40** and a recording head **38**. The carriage **40** is supported by two guide rails **45**, **46**. The two guide rails **45**, **46** each extending in the right and left direction **9** are arranged so as to be spaced apart from each other in the front and rear direction **8**. The carriage **40** is disposed over the two guide rails **45**, **46** and reciprocated along the two guide rails **45**, **46** in the right and left direction **9** as a main scanning direction. The recording head **38** is mounted on the carriage **40**. A lower face of the recording head **38** has nozzles **39** through which the recording head **38** ejects ink supplied from an ink cartridge, not shown. That is, during the reciprocation of the carriage **40** in the right and left direction **9**, the recording head **38** ejects ink droplets from the nozzles **39** toward the platen **42** to record an image on the recording sheet **12** supported on the platen **42**.

<Base Member **100**>

As illustrated in FIGS. **4**A and **4**B, the base member **100** is constituted by a center base **101** located at a central portion thereof in the right and left direction **9**; and side bases **102**, **103** contiguous to the center base **101** in the right and left direction **9**. The side base **102** is located on the right side of the center base **101**, and the side base **103** on the left side of the center base **101**. That is, the side bases **102**, **103** are spaced apart from each other in the right and left direction **9**. Also, the center base **101** is located between the side bases **102**, **103** in the right and left direction **9**. In the present embodiment, the base member **100** is formed of resin as one member.

The center base **101** has a tray accommodation space **107** for accommodating the supply tray **20** and the output tray **21**. The center base **101** supports the supply unit **16**, the recording unit **24**, the conveyor roller pair **51**, the output roller pair **61**, the platen **42**, a control board **47**, and other components. The recording sheet **12** is conveyed by the conveyor unit **80** from the supply tray **20** to the output tray **21** through the conveyance path **35** formed in the center base **101**.

The side base **102** has a cartridge accommodation space **108** for accommodating an ink cartridge, not shown and a purging mechanism accommodation space **109** for accommodating a purging mechanism **43** (see FIG. **9**). The side base **103** has a flushing tank accommodation space **110** for accommodating a flushing tank **44** or a waste ink tank. It is noted that the purging mechanism **43** uses a pump, not shown, to perform a purging operation for sucking and removing air bubbles and foreign matters with ink from the nozzles **39** of the recording head **38**. The flushing tank **44** is for receiving ink flushed from the nozzles **39** of the recording head **38** by a flushing operation. Each of the purging mechanism **43** and the flushing tank **44** is one example of a maintenance unit for maintenance of the recording head **38** mounted on the carriage **40**.

The base member **100** is divided into the following three regions in the front and rear direction **8**: a that region **104** (as one example of a first base portion) located at a rear portion of the base member **100**; a second region **105** (as one example of a second base portion) located at a central portion of the base member **100**; and a third region **106** (as one example of a third base portion) located at a front portion of the base member **100**. The first region **104** is located on the most upstream side **34** in the conveying direction **15** in the straight conveyance path. The second region **105** is located at a position located downstream of the first region **104** in the conveying direction **15** in the straight conveyance path **34** and upstream of the third region **106** in the conveying direction **15**. The third region **106** is located on the most downstream side in the conveying direction **15** in the straight conveyance path **34**.

As illustrated in FIG. **5**A, a portion of the center base **101** which is provided in the first region **104** is constituted by: a pair of side walls **111**, **112** spaced apart from each other in the right and left direction **9** and a main board or wall **113** connecting between the pair of side walls **111**, **112**. As illustrated in FIG. **5**C, a portion of the center base **101** which is provided ill the third region **106** is constituted by the pair of side walls **111**, **112** and a main board or well **114** connecting between the pair of side walls **111**, **112**.

The side wall **111** projects or extends upward from an inner side of the side base **102**, specifically, on the right edge of the center base **101** in the right and, left direction **9**. The side wall **112** projects or extends upward from an inner side of the side base **103**, specifically, on the left edge of the center base WI in the right and left direction **9**. Also, as illustrated in FIGS. **5**A, **5**B, **5**C, each of the side walls **111**, **112** extends in the front and rear direction **8** on the first region **104**, the second region **105**, and the third region **105** of the base member **100**. As illustrated in FIGS. **4**A and **4**B, a through hole **111**A is formed in a portion of the side wall **111** which is located in the first region **104**.

As illustrated in FIG. **5**A, the main board **113** disposed in the first region **104** expands in the front and rear direction **8** and the right and left direction **9** between the pair of side walls **111**, **112**. As illustrated in FIG. **5**C, the in board **114** disposed in the third region **106** expands in the front and rear direction **8** and the right and left direction **9** between the pair of side walls **111**, **112**. In the present embodiment, each of the main boards **113**, **114** connects between upper edges (i.e., protruding edges) of the pair of side walls **111**, **112**. However, positions at which the main boards **113**, **114** and the pair of side walls **111**, **112** are connected are not limited to those in the above-described example. For example, the main boards **113**, **114** may be connected to portions of the pair of side walls **111**, **112** which are slightly lower than their respective upper edge. In view of the above, the main boards **113**, **114** expand to connect the pair of side walls **111**, **112** to each other at support portions thereof located above the first base portion and the second base portion.

As illustrated in FIG. **5**B, in contrast, no main board for connecting between the pair of side walls **111**, **112** is provided on a portion of the center base **101** which is located in the second region **105**, hi other words, the main boards **113**, **114** are provided only in the first region **104** and the third region **106** of the center base **101**. In other words, the main boards **113**, **114** are spaced apart from each other in the front and rear direction **8**, with, the second region **105** therebetween.

A plurality of ribs **117**, **118** are provided on an upper surface and a lower surface of the main hoard **113** disposed in the first region **104**. The ribs **117** are provided on the upper surface and the lower surface of the main board **113** at positions spaced apart from each other in the right and left direction **9**. Each of the ribs **117** extends hi the up and down direction **7** and the front and rear direction **8**. The ribs **118** are provided on the upper surface and the lower surface of the main hoard **113** at positions spaced apart from each other in the front and rear direction **8**. Each of the ribs **118** extends in the up and down direction **7** and the right and left direction **9**. Each of the ribs **117** provided on the lower surface of the main board **113** has through holes **117**A, **117**B. These through holes **117**A, **117**B and the through, hole **111**A formed in the side wall **111** lie on the same straight line extending in the right and left direction **9**.

As illustrated in FIGS. **5**A-**5**C, the height of the side wall **111** in the first region **104** the length thereof in the up and

down direction **7**) is H**1**, the height of the side wall **111** in the second region **105** is H**2**, and the height of the side wall **111** in the third region **106** is H**3**. In the present embodiment, a relationship of these heights is as follows: H**1**=H**2**<H**3**. Accordingly, as illustrated in FIG. **6**, the main board **114** disposed in the third region **106** is located at a higher position than the main board **113** disposed in the first region **104** in the up and down direction **7**. However, the heights of the side well **111** in the regions **104**, **105**, **106** are not limited to have the above-described relationship. It should be noted that the height **112** of the side wall **111** in the second region **105** is preferably lower than each of the heights H**1**, H**3** of the side wall **111** in the first region **104** and the third region **106**. In other words, the height of the side well **111** in the second region **105** preferably is the lowest. These relationships apply to the height of the side wall **112**.

As illustrated in FIG. **7**, projections **115**A, **115**B, **116**A, **116**B are provided on opposite edge portions of the upper surface of the main board **113** in the right and left direction **9**. The projections **115**A, **115**B are provided on a right edge portion of the upper surface of the main board **113** so as to be spaced apart from each other in the front and rear direction **8**. The projections **116**A, **116**B are provided on a left edge portion of the upper surface of the main board **113** so as to be spaced apart from each other in the front and rear direction **8**. Also, a generally central portion of each of the projections **115**A, **115**B, **116**A, **116**B has a threaded hole with which a screw as one example of a fastener is to be engaged.

As illustrated in FIG. **4**B, the may accommodation space **107** is defined by the pair of side walls **111**, **112** and the main boards **113**, **114**. That is, the tray accommodation space **107** is formed under the main boards **113**, **114** of the base member **100** in the up and down direction **7**. The tray accommodation space **107** expands in the front and rear direction **8** over the first region **104**, the second region **105**, and the third region **106**, that is, the tray accommodation space **107** expands over a generally entire area of the base member **100**. Also, the tray accommodation space **107** is provided at a position corresponding to the center base **101** in the right and left direction **9**, that is, the tray accommodation space **107** is provided on a central portion of the base member **100**. It is noted that the left side plate **82** and the right side plate **83** respectively face the pair of side walls **111**, **112** in the right and left direction **9** in a state in which the supply tray **20** is accommodated in the tray accommodation space **107**.

As illustrated in FIG. **4**A, the inner guide member **19** is provided on a rear edge portion of the main hoard **113** in the front and rear direction **8**, that is, the inner guide member **19** is provided on an upstream edge portion of the main board **113** in the conveying direction **15**. The recording sheet **12** supported on the supply tray **20** guided by the inner guide member **19** from a side of the main board **113** nearer to its lower surface (as one example of a first surface) to a side of the main board **113** nearer to its upper surface (as one example of a second surface). The recording sheet **12** is then guided along the upper surface of the main board **113** and the lower face of the main board **114** to a front side in the front and rear direction **8**. That is, the curved conveyance path **33** curves along the rear edge portion of the main board **113** from the lower face to the upper surface of the main board **113**. The straight conveyance path **34** is linearly provided in the front and rear direction **8** in a horizontal plane expanding along the upper surface of the main board **113** and the lower face of the main hoard **114**.

The support shaft **28** of the supply unit **16** is inserted in the through holes **111**A, **117**A, **117**B. That is, the support shaft **28** is rotatably supported by the side wall **111** and the lower surface of the main board **113**. The supply unit **16** is disposed in the tray accommodation space **107** and supplies the recording sheet **12** supported on the supply tray **20** to the conveyance path **35**.

As illustrated in FIG. **7**, a pair of side frames **120**, **130** (as one example of a pair of metal walls) are mounted on the upper surface of the main board **113** disposed in the first region **104**. The pair of side frames **120**, **130** are spaced apart from each other in the right and left direction **9**. Each of the side frames **120**, **130** is formed by a sheet mend processing. The side frame **120** is constituted by a base portion **121** and a support wall **122** each shaped like a plate, such that the side frame **120** has a generally L-shape in cross section in a widthwise direction thereof. The side frame **130** is constituted by a base portion **131** and a support wall **132** each shaped like a plate, such that the side frame **130** has a, generally L-shape in cross section in a widthwise direction thereof.

The base portion **121** is mounted on the upper surface of the main board **113**, with its longitudinal direction coinciding with the front and rear direction **8**. The base portion **121** has through holes **123**A, **123**B which are spaced apart from each other in the front and rear direction **8**. The side frame **120** is mounted on the main board **113**, so that the projections **115**A, **115**B are respectively inserted into the through holes **123**A, **123**B. That is, the projections **115**A, **115**B and the through holes **123**A, **123**B are provided at positions corresponding to each other to position the side frame **120** with respect to the main board **113** in the front and rear direction **8** and the right and left direction **9**. Screws are respectively engaged with the threaded holes of the projections **115**A, **115**B, with the side frame **120** being mounted on the main board **113**, whereby the side frame **120** is secured to the main board **113**.

The support wall **122** stands on one of opposite edge portions of the base portion **121** in its widthwise direction. That is, the support wall **122** in the state in which the side frame **120** is mounted on the main board **113** expands upward and in the front and rear direction **8**. The support wall **122** is provided with (i) projecting pieces **124**, **125** each extending upward from an upper edge of the support wall **122** and (ii) a first receiver **126** and a second receiver **127** formed through the support wall **122** in its thickness direction. The projecting pieces **124**, **125** and the first and second receivers **126**, **127** are spaced apart from each other in a longitudinal direction of the side frame **120**. The support wall **122** in the state in which the side frame **120** is mounted on the main board **113** is provided with the projecting piece **124**, the first receiver **126**, the second receiver **127**, and the projecting piece **125** arranged in this order from the rear side to the front side in the front and rear direction **8**.

The side frame **130** has a construction similar to that of the side frame **120**. That is, the base portion **131** has through holes **133**A, **133**B. Also, the support wall **132** is provided with projecting pieces **134**, **135**, a first receiver **136**, and a second receiver **137**. In a state in which the side frames **120**, **130** are mounted on the main board **113**, the support walls **122**, **132** face each other in the right and left direction **9**. More specifically, the projecting pieces **124**, **134** are opposed to each other in the front and rear direction **8**, the projecting pieces **125**, **135** to each other in the front and rear direction **8**, the first receivers **126**, **136** to each other in the front and rear direction **8**, and the second receivers **127**, **137** to each other in the front and rear direction **8**.

As illustrated in FIG. **8**, the guide rail **45** is supported by the side frames **120**, **130**. Specifically, the guide rail **45** has through holes **45**A, **45**B formed therethrough in its thickness direction (i.e., in the up and down direction **7** in FIG. **8**) at positions spaced apart from each other hi the right and left

direction **9**. These through holes **45**A, **45**B are formed at positions respectively corresponding to the projecting pieces **124**, **134** of the side frames **120**, **130** and have shapes respectively corresponding to the projecting pieces **124**, **134**. That is, the guide rail **45** is supported by upper sides of the side frames **120**, **130**, so that the projecting pieces **124**, **134** are inserted into the through holes **45**A, **45**B, respectively. As a result, the guide rail **45** is positioned with respect to the side frames **120**, **130** (in other words, the base member **100**) in the front and rear direction **8** and the right and left direction **9**.

Though not illustrated, the guide rail **46** is, like the guide rail **45**, supported by the upper sides of the side frames **120**, **130** and positioned by the projecting pieces **125**, **135** the front and rear direction **8** and the right and left direction **9**. That is, the guide rails **45**, **46** are supported by the side frames **120**, **130** at positions spaced apart from each other hi the front and rear direction **8** and extend in the right and left direction **9**.

As illustrated in FIG. **9**, the guide rails **45**, **46** extend through the center base **101** to the side bases **102**, **103** hi the right and left direction **9**. That is, the carriage **40** is movable through an area opposed to the center base **101** to positions opposed to the side bases **102**, **103**.

The purging mechanism **43** is provided on a portion of the side base **102** which is located in the first region **104**. Specifically, the purging mechanism **43** is provided at a position opposed to the carriage **40** having moved to a position on the side base **102**. The purging operation is performed for the carriage **40** having moved along the guide rails **45**, **46** to a position opposed to the purging mechanism **43**. Likewise, the flushing tank **44** is provided on a portion of the side base **102** which is located in the first region **104**. Specifically, the flushing tank **44** is provided at a position opposed to the carriage **40** having moved to a position on the side base **103**. The flushing operation is performed for the carriage **40** having moved along the guide rails **45**, **46** to a position opposed to the flushing tank **44**.

As illustrated in FIG. **8**, fitted on the conveyor roller **52** are bearings **54**, **55** which are spaced apart from each other in an axial direction of the conveyor roller **52** (i.e., in the right and left direction **9** in FIG. **8**). Specifically, the bearings **54**, **55** are fitted on the conveyor roller **52** at positions corresponding to the first receivers **126**, **136** of the side frames **120**, **130**. The bearing **54** is supported by the first receiver **126** of the side frame **120**, and the hearing **55** is supported by the first receiver **136** of the side frame **130**.

The conveyor roller pair **51** includes the pinch rollers **53** (four rollers in the present embodiment) which are spaced apart from each other in the axial direction of the conveyor roller **52**. The pinch rollers **53** are respectively supported ratably by a plurality of roller holders **56** (four roller holders in the present embodiment). Each of the roller holders **56** includes an err aging portion **56**A. The engaging portion **56**A is engaged with an upper surface of the guide rail **45** in a state in which the engaging portion **56**A passes through a through hole **45**C that is formed through ties guide rail **45** in its thickness direction. That is the roller holders **56** are supported by the guide rail **45**.

The roller holders **56** are connected to a release shaft **57**. The release shaft **57** extends parallel to a shaft of the conveyor roller **52** and is movable in a radial direction together with the roller holders **56**. Urging members, not shown are arranged between the guide rail **45** and the respective roller holders **56** to urge the respective roller holders **56** (in other words, the respective pinch rollers **53**) onto the conveyor roller **52**.

The output roller **62** is constituted by the shaft **64** and the rollers **65** fitted on the shaft **64** at positions spaced apart from each other in the axial direction. The shaft **64** is rotatably supported by the side frames **120**, **130** via bearings, not shown, that are fitted on the shaft **64** at positions spaced apart from each other in its axial direction. More specifically, the bearings fitted on the shaft **64** are supported by the second receivers **127**, **137** of the side frames **120**, **130**. The spurs **63** are provided at positions respectively corresponding to the rollers **65** of the output roller **62**. The spurs **63** are rotatably supported by the respective shafts **66**. Each of the spurs **63** is supported by a support plate, not shown. This support plate is supported by the guide rail **46**.

As described above, the guide rails **45**, **46**, the supply unit **16**, the conveyor roller pair **51**, and the output roller pair **61** are supported by the side frames **120**, **130**. The carriage **40** (in other words, the recording unit **24**) is supported by the side frames **120**, **130** via the guide rails **45**, **46**. That is, the guide rails **45**, **46**, the supply unit **16**, the conveyor roller pair **51**, the recording unit **24**, and the output roller pair **61** are supported by the base member **100** in the first region **104**.

FIGS. **10**A and **10**B are schematic views each illustrating a shape of the center base **101** in the first region **104** in a plane including the up and down direction **7** and the right and left direction **9** (in other words, FIGS. **10**A and **10**B are plan views illustrating the center base **101** in the first region **104** when viewed in the front and rear direction **8**). Broken lines indicate a shape of the center base **101** before deformation, and solid lines indicate a shape of the center base **101** after deformation.

In a case where the base member **100** is supported at only its left and right edges, the base member **100** receives a bending moment in a direction in which the base member **100** is deformed in a downward convex shape (i.e., in a direction indicated by arrows in FIG. **10**A). It is noted that this situation may be caused in a case where the MFP **10** is placed over a step or in a case where the MFP **10** is raised with left and right edges thereof being grasped, for example. In contrast, in a case where the MFP **10** falls to a floor surface, for example, the base member **100** receives a bending moment in a direction in which the base member **100** is deformed in a upward convex shape (i.e., in a direction indicated by arrows in FIG. **10**B).

In order to reduce an amount of lowering in quality of image recording due to the bending moment in such a situation, the center base **101** in the present embodiment is designed such that the flexural rigidity of the main board **113** with respect to the bending moment is larger than that of each of the side walls **111**, **112**.

<Effects of the Present Embodiment>

The flexural rigidities of the main board **113** and the side walls **111**, **112** in the first region **104** are set as described above. Thus, in a case where external forces (i.e., a bending moment) as illustrated in FIG. **10**A are applied to the MFP **10**, the side walls **111**, **112** are deformed by a large amount. More specifically, when the bending moment indicated by the arrows in FIG. **10**A acts on the base member **100**, lower edge portions of the side walls **111**, **112** are displaced outwardly in the right and left direction **9** by a large distance (that is, the lower edge portions are defamed in directions in which the side walls **111**, **112** are moved away from each other). As a result, external forces applied to the base member **100** are less transmitted to the main board **113**.

On the other hand, when the bending moment indicated by the arrows in FIG. **10**B acts on the base member **100**, lower edge portions of the side walls **111**, **112** as displaced inwardly in the right and left direction **9** (that is, the lower edge portions are deformed in directions in which the side walls **111**, **112** are moved toward each other). However, the lower edges of the side walls **111**, **112** displaced inwardly in the right and left

direction **9** are brought into contact respectively with the right side plate **83** and the left side plate **82** of the supply tray **20** accommodated in the tray accommodation space **107** and thereby prevented from being displaced further more. That is, since the external forces indicated by the arrows in FIG. **10**B are received by the supply tray **20**, the external forces applied to the base member **100** are less transmitted to the main board **113** also in this case.

Also, the components such as the recording unit **24**, the guide mils **45**, **46**, the conveyor roller pair **51**, and the output roller pair **61** are supported by the side frames **120**, **130** mounted on the main board **113** that is less deformed, allowing these components to be positioned accurately. Thus, it is possible to further reduce the amount of lowering in quality of image recording performed by the printing section **11**.

In the present embodiment, the ribs **118** provided on the main board **113** so as to extend in the right and left direction **9** are used as a means for making the flexural rigidity of the main board **113** larger than that of each of the side walls **111**, **112**, but the present invention is not limited to this construction. For example, a resin plate constituting the main hoard **113** may have a large thickness than each of the side walls **111**, **112**, or a through hole or a cutout may be formed in the side walls **111**, **112**.

In the present embodiment, a relationship of the flexural rigidity with respect to the bending moment illustrated in FIGS. **10**A and **10**B is explained above, but the present invention is not limited to the relationship explained above. The stiffness of the main board **113** is preferably made larger than that of each of the side walls **111**, **112** with respect to external forces acting on the base member **100** other than a bending load. For example, the stiffness of the main hoard **113** may be made larger than that of each of the side walls **111**, **112** with respect to a compression load (or a tension load) applied to the MFP **10** in the front and rear direction **8**.

There has been explained the relationship of stiffness between the main board **113** and the side walls **111**, **112** in the first region **104** of the base member **100** in the present embodiment, but the present invention is not limited to this. The stiffness of the main board **114** may be larger than that of each of the side walls **111**, **112** in the third region of the base member **100**. As a result, it is possible to prevent bending of the control hoard **47** supported by the main hoard **114** disposed in the third region **106**.

In the present embodiment, the supply tray **20** and the supply unit **16** are disposed on a side of the main board **113** nearer to the lower surface, and the conveyor roller pair **51**, the recording unit **24**, the output roller pair **61**, and so on are disposed on a side of the main board **113** nearer to the upper surface, and the curved conveyance path **33** is formed between the components disposed on the lower-surface side and the components disposed on the upper-surface side. Thus, the MFP **10** can be made smaller in size. However, the present invention is not limited to this construction and may be applied to an ink-jet recording apparatus having only the straight conveyance path **34**.

In the example explained above, the front and rear direction **8** is the first direction, the up and down direction **7** is the second direction, and the right and left direction **9** is the third direction in the present embodiment, but the present invention is not limited to this relationship. For example, the right and left direction **9** and the front and mar direction **8** may be the first direction and the third direction, respectively, and other combinations may be possible.

What is claimed is:

1. An ink-jet recording apparatus comprising:

a base member made of resin material;

a conveyor unit supported by the base member and configured to convey a sheet in a conveying direction that is parallel to a first direction; and

a recording unit supported by the base member and configured to eject ink to record an image on the sheet in a state in which the recording unit is opposed to the sheet in a second direction perpendicular to the first direction;

wherein the base member comprises:

a first side base portion and a second side base portion each extending in the first direction and spaced apart from each other in a third direction that is perpendicular to each of the first direction and the second direction;

a center base portion located between the first side base portion and the second side base portion in the third direction;

a pair of side walls opposed to each other in the third direction and comprising

(i) a first side wall extending in the first direction and projecting in the second direction from an edge portion of the center base portion near the first side base portion in the third direction; and

(ii) a second side wall extending in the first direction and projecting in the second direction from an edge portion of the center base portion near the second side base portion in the third direction; and

a connecting member connecting the first side wall and the second side wall to each other and configured to support the conveyor unit and the recording unit;

wherein the ink-jet recording apparatus further comprises:

a pair of metal walls supported by the connecting member and spaced apart from each other in the third direction; and

a guide rail supported by the pair of metal walls and extending in the third direction,

wherein a stiffness of the connecting member is greater than that of each of the first side wall and the second side wall;

wherein the recording unit comprises:

a carriage supported by the guide rail and reciprocated in the third direction; and

a recording head mounted on the carriage and configured to eject ink from a plurality of nozzles; and

wherein the conveyor unit comprises:

a conveyor roller supported by the pair of metal walls at a position located upstream of the recording head in the conveying direction; and

an output roller supported by the pair of metal walls at a position located downstream of the recording head in the conveying direction.

2. The ink-jet recording apparatus according to claim **1**;

wherein the center base portion comprises:

a first base portion that supports the conveyor unit and the recording unit;

a second base portion contiguous to the first base portion at a position located downstream of the first base portion in the conveying direction; and

a third base portion contiguous to the second base portion at a position located downstream of the second base portion in the conveying direction;

wherein each of the first side wall and the second side wall extends in the first direction on the first base portion, the second base portion, and the third base portion; and

wherein the connecting member connects the first side wall and the second side wall to each other only in the first base portion and the third base portion.

3. The recording apparatus according to claim **1**;

wherein the connecting member is a main board.

4. The ink-jet recording apparatus according to claim **3**, further comprising:

a tray disposed in a space defined by the first side wall, the second side wall, and the main board, the tray being configured to support the sheet; and

a supply unit supported by the main board and configured to supply the sheet supported by the tray to the conveyor roller;

wherein the tray comprises:

a support surface that supports the sheet; and

a plurality of opposite walls projecting from the support surface and opposed to the first side wall and the second side wall.

5. The ink-jet recording apparatus according to claim **4**;

wherein the main board comprises a first surface and a second surface opposed to each other in the second direction;

wherein a distance between the first surface and the space in which the tray is disposed is less than a distance between the second surface and the space;

wherein the first surface supports the supply unit, and the second surface supports the pair of metal walls; and

wherein an upstream edge portion of the main board in the conveying direction serves as a guide that guides the sheet supplied by the supply unit, from a side of the main board near the first surface to a side of the main board near the second surface.

6. The ink-jet recording apparatus according to claim **3**;

wherein the pair of metal walls are screwed to the main board.

7. The ink-jet recording apparatus according to claim **3**;

wherein the guide rail extends in the third direction to a position opposed to the first side base portion; and

wherein the first side base portion is configured to support a maintenance unit that performs a maintenance operation for the recording head mounted on the carriage having moved along the guide rail to a position opposed to the first side base portion.

8. The ink-jet recording apparatus according to claim **3**;

wherein at least one rib projecting in the second direction and extending in the third direction is formed on the main board.

9. The ink-jet recording apparatus according to claim **3**;

wherein the center base portion comprises:

a first base portion that supports the conveyor unit and the recording unit;

a second base portion contiguous to the first base portion at a position located. downstream of the first base portion in the conveying direction; and

a third base portion, contiguous to the second base portion at a position located. downstream of the second base portion in the conveying direction;

wherein each of the first side wall and the second side wall extends in the first direction on the first base portion, the second base portion, and the third base portion;

wherein the main board connects the first side wall and the second side wall to each other only in the first base portion and the third base portion; and

wherein the main board connecting the first side wall and the second side wail to each other in the third base portion supports a control board configured to control the conveyor unit and the recording unit.

* * * * *